

## **Australian Bureau of Statistics**

## 6287.0 - Labour Force Characteristics of Aboriginal and Torres Strait Islander Australians, Estimates from the Labour Force Survey, 2009

Previous ISSUE Released at 11:30 AM (CANBERRA TIME) 03/06/2010

## **Summary**

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## Concepts, Sources and Methods

Includes the new labour force classifications of participants in the reformed Community Development Employment Programs (CDEP) scheme



#### **Participation**

In 2009, an estimated 196,500 Indigenous people were in the labour force. This represented an Indigenous labour force participation rate of 56%.



There were an estimated 161,200 Indigenous people employed in 2009, which was 46% of the Indigenous population.



#### Unemployment

In 2009, the unemployment rate for the Indigenous population was 18%, with an estimated 35,400



#### **Comparisons with Non-Indigenous Estimates**

There are a number of considerations when making comparisons between the labour force characteristics of Indigenous and non-Indigenous people.



#### Other Sources of Information

Although the estimates available from other ABS collections are based on the same underlying concepts as the LFS, there are important differences which affect the comparability of data

## Notes

#### **NOTES**

#### **ABOUT THIS PUBLICATION**

This publication presents information about the labour force characteristics of Aboriginal and Torres Strait Islander Australians. Information on labour force characteristics is presented by state or territory, remoteness, males and females, and age.

The estimates in this publication were compiled from the monthly Labour Force Survey, conducted throughout Australia by the Australian Bureau of Statistics (ABS). Results from each monthly collection have been combined to produce annual estimates.

Previously published estimates released in earlier editions of **Labour Force Characteristics of Aboriginal and Torres Strait Islander Australians** (cat. no. 6287.0), are not strictly comparable with the estimates in this release due to:

- rebenchmarking of estimates from 2005 to 2007 to be based on the population estimates released in Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021 (cat. no. 3238.0); and
- changes in methodology for estimates published for 1994-2000.

The Labour Force Survey has methodological and definitional differences when compared with other sources of Indigenous Labour Force data, such as

- Census of Population and Housing, 2006
- National Aboriginal and Torres Strait Islander Social Survey (NATSISS), 2008 (cat. no. 4714.0)
- National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), 2004-05 (cat. no. 4715.0)

The differences in the methodologies used affect the comparability of the estimates. These are discussed in Other Sources of Information.

#### **ROUNDING**

As estimates have been rounded, discrepancies may occur between sums of the component items and totals.

#### **INQUIRIES**

For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070, email client.services@abs.gov.au or Scott Marley on Canberra (02) 6252 6525, email labourforce@abs.gov.au

## **About this Release**

This publication provides estimates of the labour force characteristics of Aboriginal and Torres Strait Islander Australians using data from the Labour Force Survey. The publication also draws attention to statistical and data quality issues that should be considered when using the estimates.

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#### INTRODUCTION

This publication presents information about the labour force characteristics of Aboriginal and Torres Strait Islander Australians aged 15 years and over. The information is based on data collected by the Australian Bureau of Statistics (ABS) in its monthly Labour Force Survey

(LFS) during 2008 and 2009. Revised data for 2005 to 2007 are also included in this publication for comparison purposes.

The monthly LFS is the main source of information about the labour force status of Australia's civilian population. The labour force estimates for Aboriginal and Torres Strait Islanders in this publication were produced by combining the LFS samples for each of the 12 months of a calendar year to produce annual estimates.

This section contains the following subsection : Comparison to Previous Issues Statistical Issues Other ABS Data Collections

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## **Comparison to Previous Issues**

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#### **COMPARISON TO PREVIOUS ISSUES**

Previously published estimates released in earlier editions of **Labour Force Characteristics of Aboriginal and Torres Strait Islander Australians** (cat. no. 6287.0), are not strictly comparable with the estimates in this release due to:

- rebenchmarking of estimates from 2005 to 2007 to be based on the population estimates released in Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021 (cat. no. 3238.0); and
- changes in methodology for estimates published for 1994-2000.

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## Statistical Issues

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#### STATISTICAL ISSUES

To help in the interpretation of these estimates, this publication also draws attention to a number of statistical issues that need to be considered when using LFS estimates to describe Indigenous labour force characteristics. These have an impact on the relevance, quality and reliability of Indigenous estimates from the LFS.

Some of these statistical issues arise because the LFS is designed primarily to provide reliable estimates of key labour force aggregates for the whole of Australia and, secondarily, for each state and territory, rather than estimates for small populations or small geographic

areas. The small number of the Indigenous population and its wide dispersion, together with the relatively high proportion who live in remote areas present particular difficulties in producing reliable labour force estimates for the Indigenous population.

There are also some practical difficulties with applying the standard LFS concepts and definitions and using the standard LFS survey questions in Indigenous communities, particularly in remote regions.

In addition, the small sample of Indigenous Australians identified in the LFS, even when aggregated across the year, has implications for the reliability of the survey estimates.

These issues are discussed further in Concepts, Sources and Methods

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## Other ABS Data Collections

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#### OTHER ABS DATA COLLECTIONS

Additional information on the labour force status of Indigenous Australians is also available from a number of other ABS data collections, including:

- Census of Population and Housing, 2006
- National Aboriginal and Torres Strait Islander Social Survey (NATSISS), 2008 (cat. no. 4714.0)
- National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), 2004-05 (cat. no. 4715.0)

Although the labour force statistics from these data sources are based on the same underlying concepts as the LFS, there are differences in the methodologies used which affect the comparability of the data.

Broad estimates from these sources, and the methodological and definitional differences, are presented in Other Sources of Information.

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## **Concepts, Sources and Methods**

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#### INTRODUCTION

Information about the labour force characteristics of the Aboriginal and Torres Strait Islander population has been collected in the LFS using international standards for defining and measuring employment and unemployment. The distinction between paid and unpaid work is fundamental to these definitions. As a result, the definitions may not always give adequate recognition to the 'unpaid' activities which some people undertake. However, the use of standard definitions across all population groups is seen as important for ensuring objectivity and uniformity in measuring Australia's labour force.

This section provides information on issues specific to Indigenous estimates from the LFS. Information on the methodology and concepts used in the LFS more generally are presented in the Explanatory Notes section with additional detail published in **Labour Statistics: Concepts Sources and Methods** (cat. no. 6102.0.55.001).

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## Questionnaire

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#### **QUESTIONNAIRE**

In the LFS, information is generally collected by specially trained interviewers using a standard LFS questionnaire, from people in dwellings selected in the LFS. The questionnaire used in the survey is published in **Information Paper: Questionnaires used in the Labour Force Survey** (cat. no. 6232.0).

Special procedures are used to collect information in some Indigenous communities in remote areas to minimise respondent load and achieve maximum cooperation and response rates. In particular, a 'short form', which collects the minimum data required to derive basic labour force characteristics, is available for use when interviewers encounter significant cultural, language or operational difficulties in remote areas.

From April 2001, the monthly LFS has included a question on Indigenous status. This has enabled information on the Indigenous status of respondents to be collected for each month of the survey, increasing the amount of information available on Indigenous people from the LFS.

The question asked to determine Indigenous status is:

Is ... of Aboriginal origin, Torres Strait Islander origin or both?

Although the question on Indigenous origin allows people to identify as being of Aboriginal origin only, Torres Strait Islander origin only, or as both Aboriginal and Torres Strait Islander origin, it is not feasible to derive separate labour force statistics for these three groups because of the small numbers of Indigenous people in the LFS sample.

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## **Sample Size**

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#### **SAMPLE SIZE**

For 2008 and 2009, the LFS had a monthly sample ranging from 41,000 to 61,000 people aged 15 years and over, in urban, rural and remote areas across all states and territories of Australia. This sample range is due to a 24% sample cut that was introduced in June 2008, and was later reinstated between September and December 2009. Further information about the sample cut and reinstatement can be found in **Information Paper: Labour Force Survey Sample Design** (cat. no. 6269.0)

The LFS sample size is sufficient to provide reliable monthly estimates of level and change in the major labour force characteristics of the total population for Australia and for each state and territory. However, the survey sample is not specifically designed to provide monthly estimates for small population groups, such as the Indigenous population, or for small geographic areas.

The methodology used to produce the labour force estimates for Indigenous Australians is based on combining the LFS samples for each of the twelve months of the year. This pooling has resulted in a sample of between 10,500 and 13,500 records each year. This sample size is adequate for providing broad aggregates of labour force characteristics at the state and territory level. However, the sample size per year is still quite small, resulting in constraints on the level of disaggregated data available from the survey.

Note that as the sample is pooled from monthly data throughout the year, and most people are interviewed for the LFS in more than one month (up to eight consecutive months), the number of individuals interviewed each year (approx. 3,700 in 2008 and 3,100 in 2009) is substantially lower than the sample used to produce the estimates (12,800 in 2008 and 10,500 in 2009).

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## Sample Design

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#### SAMPLE DESIGN

In remote areas of Australia, the LFS sample is more clustered than in non-remote areas, so that the majority of the survey's sample of Indigenous people living in remote areas tends to be concentrated in a relatively small number of clusters. This has significant implications for estimates for Indigenous people in remote areas.

There is a high degree of variability in employment opportunities between Indigenous communities, while employment opportunities for people within a particular Indigenous community are likely to be similar.

Due to the small number of Indigenous communities selected in the LFS, there is the potential for wide statistical fluctuations in estimates of labour force characteristics of remote Indigenous communities over time if the sample moves from communities with strong employment opportunities to those which do not (and vice versa).

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### **Estimation**

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#### **ESTIMATION**

As part of the estimation process, the LFS estimates of Indigenous persons employed, unemployed and not in the labour force are calculated in such a way as to add to independent estimates of the size and structure of the Indigenous population. Independent population estimates (benchmarks) for the Indigenous population aged 15 years and over by sex, broad age groups and remoteness type, for each state and territory of Australia, as at 30 June, were used for each year of estimates. These benchmarks reflect the low series population projections based on the 2006 Census as published in **Experimental Estimates and Projections**, **Aboriginal and Torres Strait Islander Australians**, **1991 to 2021** (cat. no. 3238.0).

These projections are not predictions or forecasts, but are projections of Census data reflecting the growth in population which would occur if certain assumptions about future levels of fertility, mortality, migration and unexplained growth were to prevail over the projection period.

Where data in this publication are presented by geographic area (such as remoteness, or state or territory), the data are based on a respondent's place of enumeration (i.e. the location of where the respondent was interviewed for the survey).

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## **Employment (concept)**

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**EMPLOYMENT** 

In the LFS, employment is defined as working for at least one hour, either

- for pay or profit, or
- as unpaid work in a family business; or
- being absent from work but remaining formally attached to a job.

Persons who participate in labour market programs are counted as employed, unemployed or not in the labour force according to how they respond to questions in the LFS about their actual activity in the week before interview.

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## **Community Development Employment Projects (CDEP)**

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#### COMMUNITY DEVELOPMENT EMPLOYMENT PROJECTS (CDEP)

The Community Development Employment Projects (CDEP) scheme is a program provided by the Federal Government for (primarily) Aboriginal and Torres Strait Islander people living in remote, rural and urban areas. It enables an Indigenous community or organisation to pool the unemployment benefit entitlements of individuals into direct wages for those people who choose to participate in local employment in various community development or organisation programs as an alternative to receiving individual income support payments.

Prior to July 2009, the relationship between CDEP organisations and the individual participants who were undertaking paid work was treated by ABS as an employer/employee relationship. The individual participants were considered to be in paid employment, even though they were paid for their work from funds originating from unemployment benefits.

From July 2009 onwards, the CDEP scheme was discontinued in non-remote locations where the economy is well established. Individuals in these communities who were formerly paid wages under CDEP and are now instead receiving alternative income support benefits are no longer considered to be employed, unless they have commenced another form of paid employment.

In remote communities, CDEP will continue to operate until June 2011, but new participants to the scheme will receive income support benefits instead of CDEP wages. Participants who joined prior to July 2009 and are still receiving CDEP wages will continue to be classified as employed, but new participants are not considered to be in an employer/employee relationship and will not be classed as employed by their CDEP participation.

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## **Unemployment (concept)**

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#### **UNEMPLOYMENT**

The definition of unemployment is based around the concepts of

- actively looking for work, and
- being available to start work.

Where job opportunities are scarce or may not exist, such as in some remote parts of Australia, there may be little incentive to actively look for work. As a result, there may be relatively little unemployment measured in such regions, with the population who are not employed falling mainly into the 'not in the labour force' category.

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## **Reliability of Estimates**

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#### **RELIABILITY OF ESTIMATES**

When reading the following sections on Participation, Employment and Unemployment, or using the detailed data presented in the Tables (available in Downloads), it is important to consider the relative strengths and weaknesses of the LFS as a data source for Indigenous labour force information.

It is also important to remember that all LFS estimates are subject to sampling errors. This is particularly relevant to these Indigenous estimates because of the small size of the Indigenous population and the small number of Indigenous persons in the LFS sample.

These estimates are also subject to non-sampling errors due to particular collection difficulties in remote areas, in addition to imperfections in reporting, recording or processing of data that can occur in any survey or census.

It is also important to note that the population benchmarks used for compiling Indigenous labour force estimates are not predictions or forecasts, but are projections of 2006 Census data reflecting the growth in population which would occur if certain assumptions about future levels of fertility, mortality, migration and unexplained growth were to prevail over the projection period.

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## **Standard Errors**

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#### STANDARD ERRORS

The Technical Note provides more information about the reliability of estimates based on a sample survey. However, in general terms, very small estimates are subject to high sampling errors (relative to the size of the estimate).

Estimates with a relative standard error (RSE) of 25% or greater would not be suitable for most practical purposes. These estimates are indicated by an asterisk (\*) in Tables 1 to 5 (available in Downloads). The actual standard errors for level estimates are also provided as a separate worksheet in the Tables.

Comparisons over time of Indigenous labour force characteristics should be interpreted with particular caution. It is important to take into account the high standard errors associated with annual movements.

For example, the estimated number of Indigenous people employed decreased from 163,200 in 2008 to 161,200 in 2009. However, the standard error on this movement (8,900) means that this decrease is not statistically significant.

The standard errors of the year to year movements are also included as a separate worksheet in Tables 1 to 5 (available in Downloads).

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## **Participation**

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In 2009, an estimated 196,500 Indigenous people were in the labour force (i.e. either employed or unemployed). This represents a labour force participation rate for all Indigenous people aged 15 years and over of 56%.

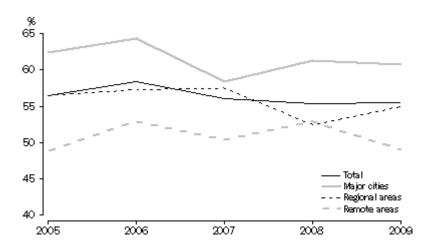
Of the Indigenous people in the labour force, more lived in Regional areas (88,500 people) than in Major Cities (69,700) or Remote areas (38,400). Both Major Cities and Regional Areas had the highest participation rate at 61% and 55% respectively in 2009.

Next Section: Employment >>

Males accounted for 55% of the Indigenous labour force in 2009. The labour force participation rate for Indigenous males (63%) was considerably higher than for Indigenous females (49%). In Remote areas, Indigenous male participation has decreased since 2006 while female participation has generally increased. By 2009, the labour force participation rates for Indigenous males in Remote areas was no longer considerably higher than females (50% and 48% respectively).

The participation rate for Indigenous people aged 15-64 years in 2009 (58%) was slightly higher than the rate for all Indigenous people aged 15 years and over (56%). Indigenous persons aged 65 years and over accounted for 5% of the total Indigenous population aged 15 years and over in 2009 (For more information, see Comparisons with non-Indigenous Estimates).

#### PARTICIPATION RATE, Indigenous persons aged 15 years and over - 2005 to 2009



#### NOT IN THE LABOUR FORCE

Between 2005 and 2009, the Indigenous population not in the labour force has generally increased from 135,900 to 157,400. In 2009, more Indigenous people not in the labour force lived in Regional areas (72,500) than in Major cities (45,000) and Remote areas (39,800). Females accounted for 59% of the total Indigenous population not in the labour force.

For more detailed estimates of Aboriginal and Torres Strait Islander labour force participation, refer to Tables 1 to 5 (available in Downloads).

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## **Employment**

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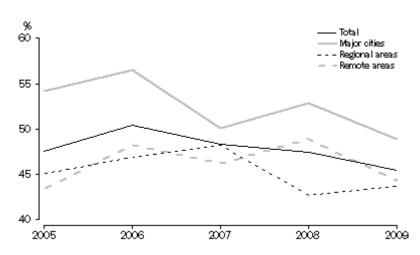
In 2009, there were an estimated 161,200 Indigenous people aged 15 years and over in employment. This represented 46% of the Indigenous population aged 15 years and over.

The employment to population ratio for Indigenous males (51%) has fallen since a peak estimate of 57% in 2006. The employment to population ratio for Indigenous females fell from a high estimate of 44% in 2006 to 41% in 2007, and remained relatively steady, estimated at 40% in 2009.

In 2009, there were an estimated 56,100 Indigenous people employed in Major Cities, 70,400 employed in Regional areas and 34,700 employed in Remote areas. The employment to population ratio was 49% in Major Cities, and 44% in Regional areas and Remote areas.

The employment to population ratio of Indigenous males in Remote areas decreased 11 percentage points between 2006 and 2009, with a 6 point drop between 2008 and 2009. The employment to population ratio for Indigenous females in Remote areas also decreased from 47% in 2008 to 43% in 2009, although this drop is within the standard movement errors and should not be considered significant. Indigenous people participating in the CDEP scheme, who were classified by the ABS as employed, are likely to form a significant proportion of Indigenous employment in remote areas (see **National Aboriginal and Torres Strait Islander Social Survey, 2008** (cat. no. 4714.0)).

## EMPLOYMENT TO POPULATION RATIO, Indigenous persons aged 15 years and over - 2005 to 2009



For more detailed estimates of Aboriginal and Torres Strait Islander employment, refer to Tables 1 to 5 (available in Downloads).

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## Unemployment

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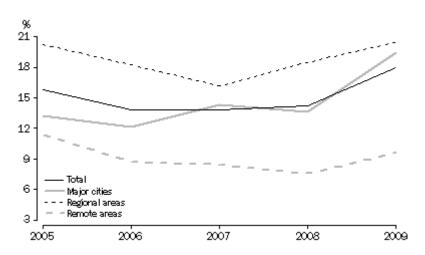
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Next Section: Comparisons with non-Indigenous

In 2009, the unemployment rate for the Indigenous population was 18%, with an estimated 35,400 unemployed Indigenous people aged 15 years and over. The unemployment rate increased 4 percentage points from the estimate for 2008 (14%)

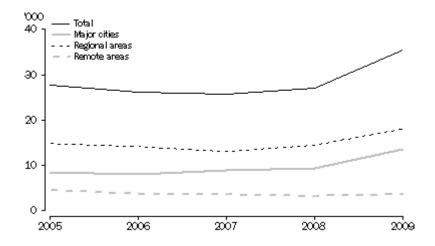
The unemployment rate for Indigenous people was 19% in Major Cities, 20% in Regional areas, and 10% in Remote areas. However, estimates of unemployment for Remote areas should be used with great care as they were subject to high sampling errors. In addition, Remote areas generally have an underdeveloped labour market and this was reflected in the low number of Indigenous people actively looking for work and therefore not classified as unemployed.

#### **UNEMPLOYMENT RATE, Indigenous persons aged 15 years and over - 2005 to 2009**



Between 2008 and 2009, estimates for Indigenous unemployment significantly increased from 27,100 to 35,400 (30% growth). This was driven by increases of 9,300 to 13,500 in Major cities (45% growth), and 14,500 to 18,100 in Regional areas (25%). Females accounted for 62% of the growth in unemployment in Major cities, while males accounted for all of the increased unemployment in Regional areas, offset by a small decrease in female unemployment. Estimates of unemployment in remote areas also increased, but were within standard movement errors and were not statistically significant.

**UNEMPLOYMENT, Indigenous persons aged 15 years and over - 2005 to 2009** 



For more detailed estimates of Aboriginal and Torres Strait Islander unemployment, refer to Tables 1 to 5 (available in Downloads).

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## **Comparisons with non-Indigenous Estimates**

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### COMPARISONS WITH NON-INDIGENOUS ESTIMATES

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#### INTRODUCTION

The methodology used to produce the estimates in this publication can also be used to produce estimates of the non-Indigenous population and total civilian population. Two tables are available in Downloads that compare these estimates for 2009:

- Table 6. Comparison of Indigenous and non-Indigenous estimates, Labour force status by Sex and Remoteness 2009
- Table 7. Comparison of Indigenous and non-Indigenous estimates, Labour force status by Sex and State 2009

There are a number of considerations when making comparisons between the labour force characteristics of Indigenous and non-Indigenous people.

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Comparisons with non-Indigenous Population
Comparisons with total population estimates

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## **Comparisons with non-Indigenous Population**

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#### COMPARISONS WITH NON-INDIGENOUS POPULATION

The Indigenous population has a younger age structure than the non-Indigenous population,

which can make direct comparisons misleading. While the Indigenous population aged 65 years and over accounted for 5% of the total Indigenous population aged 15 years and over in 2009, the corresponding proportion was 16% for the non-Indigenous population.

It is possible to remove the effect of the differences in age structures through agestandardisation. However, the estimates in this publication have not been age-standardised. For this reason caution should be used if a comparison of Indigenous and non-Indigenous estimates is made. This is especially relevant in comparisons of rates and ratios, such as the participation rate, of the Indigenous and non-Indigenous populations.

Another reason for caution when comparing Indigenous and non-Indigenous estimates is the geographical distribution of the two populations. About one-quarter (22%) of Indigenous people aged 15 years and over lived in Remote areas in 2009. In comparison only 2% of non-Indigenous people aged 15 years and over lived in Remote areas in 2009.

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## **Comparisons with total population estimates**

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#### **COMPARISONS WITH TOTAL POPULATION ESTIMATES**

While the total population estimates in this publication are from the LFS, the estimates are not at all comparable with the monthly estimates released from the LFS. The monthly estimates from the LFS are produced:

- for the current month only, rather than 12 months pooled as used for the Indigenous estimates, and
- using different benchmarks to those used for the Indigenous estimates.

The estimates in this publication should be used in analysing the labour force characteristics of Indigenous people only. For information on the labour force characteristics of the Australian civilian population aged 15 years and over refer to **Labour Force, Australia** (cat. no. 6202.0).

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#### OTHER SOURCES OF INFORMATION

#### **SUMMARY**

Information on the labour force characteristics of the Indigenous population are also available from:

- Census of Population and Housing, 2006
- National Aboriginal and Torres Strait Islander Social Survey (NATSISS), 2008 (cat. no. 4714.0)
- National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), 2004-05 (cat. no. 4715.0)

The table below compares estimates from these collections against the annual estimates from the LFS provided in this publication.

LABOUR FORCE STATUS BY DATA SOURCE AND REMOTENESS, Indigenous persons aged 15 years and over - 2005 to 2009

		Total empl- oyed '000	Total unemp- loyed '000	Not in labour force '000	Civilian popu- lation '000	Unemp- loyment rate %	Partici- pation rate %	Employ- ment to populat- ion ratio %
2004/05	NATSIHS <sup>1</sup>	143.8	26.2	123.6	293.6	15.4	57.9	49.0
2005	LFS	148.5	27.8	135.9	312.3	15.8	56.5	47.6
2006	LFS	162.5	26.2	134.0	322.6	13.9	58.5	50.4
2006	Census <sup>2</sup>	122.3	22.5	120.7	265.5	15.5	54.5	46.1
2007	LFS	160.8	25.7	146.4	332.9	13.8	56.0	48.3
2008	LFS	163.2	27.1	153.1	343.4	14.2	55.4	47.5
2008	NATSISS <sup>1</sup>	169.1	33.4	124.6	327.1	16.5	61.9	51.7
2009	LFS	161.2	35.4	157.4	353.9	18.0	55.5	45.5

<sup>&</sup>lt;sup>1</sup> Includes residents of private dwellings only.

A more detailed comparison of labour force estimates from these collections is provided in Table 8. - Comparison of estimates of Labour force status by Data source and Remoteness (available in Downloads).

Although the estimates available from the non-LFS sources are based on the same underlying concepts as the LFS, there are differences in their collection methodologies, definitions, questions and estimation procedures which affect the comparability of data. This section details the differences between the various sources.

<sup>&</sup>lt;sup>2</sup> Excludes people in Migratory and Other Territories, those who did not state their Indigenous status, and those who did not state their labour force status.

This section contains the following subsection:

**Previous Releases** 

Census of Population and Housing

National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

**Future Data Collections** 

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#### **Previous Releases**

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#### **PREVIOUS RELEASES**

1994 - 2000

Between 1994 and 2000, a question on Indigenous status was included in the LFS for one month (usually February) every year. The information collected provided a snapshot for that one month in each year, and was published in **Occasional Paper: Labour Force**Characteristics of Aboriginal and Torres Strait Islander Australians, Experimental Estimates from the Labour Force Survey, 1994 - 2000 (cat. no. 6287.0).

Due to the small sample size, dissemination of Indigenous data was limited to male and females by labour force status, across broad geographical regions of Australia. Data was not released by age group or by state and territory.

Due to major differences in the estimation methodology used to produce these previous estimates, comparisons should not be made with estimates in this publication.

#### 2002 - 2007

The Past Releases of this publication (known as **Labour Force Characteristics of Aboriginal and Torres Strait Islander Australians, Experimental Estimates from the Labour Force Survey** between 2002 and 2006) use the same methodology as the current release.

However, the previous estimates are not strictly comparable with the current estimates. The current estimates have been benchmarked to meet the latest population estimates, released in **Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021** (cat. no. 3238.0), including revisions to the historical estimates for 2005 to 2007.

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## **Census of Population and Housing**

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CENSUS OF POPULATION AND HOUSING

The five-yearly Census of Population and Housing is a source of information on small population groups such as the Indigenous population. The Census also provides information for small geographic regions.

However, the Census collects only a limited range of labour force information, and the questionnaire is mainly completed by people answering the questions by themselves (or by another household member on their behalf), without an interviewer present (although interviewers are used in most discrete Indigenous communities).

Because the self-enumerated questionnaire module defines unemployment less precisely than the LFS, the estimates produced are not strictly comparable with those from the LFS.

To be consistent with the estimates in this publication, the Census data used here are based on place of enumeration and exclude Indigenous people in Other Territories and Indigenous people who did not state their labour force status.

#### **Population differences**

The number of Indigenous people aged 15 years and over enumerated in the 2006 Census is lower than the 2006 estimated resident Indigenous population and subsequent low-series Indigenous population projections (used for the LFS Indigenous population benchmarks).

To obtain the estimated resident Indigenous population for 2006, various adjustments were made to the 8 August 2006 Census estimates. These adjustments included accounting for non-response to the Aboriginal and Torres Strait Islander origin question, net Census undercount of Indigenous persons, and residents temporarily overseas on Census night. See the Explanatory Notes in **Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians** (cat. no. 3238.0) for further information.

As a result of the differing population bases, estimates of labour force characteristics from the Census are substantially lower for the employed, though the difference is less pronounced for the unemployed. Estimates of rates, such as the unemployment or labour force participation rate, which do not depend on having the same base population, show Census results which are quite similar to estimates from other Indigenous data sources.

#### **Questionnaire differences**

While the Census aims to derive labour force status on a basis comparable with the LFS, the Census questions are not as detailed, nor as comprehensive. Largely due to space limitations on the Census form, as well as constraints imposed by self-enumeration, the Census uses a shorter questionnaire module to determine labour force status.

This shorter questionnaire module produces different estimates of employment, unemployment and not in the labour force, than the full LFS questionnaire (which was used in 80% of LFS interviews with Indigenous respondents, with a short questionnaire used for the remaining 20%, mainly in remote communities). The shortened set of questions in the Census cannot determine labour force status as precisely as the full LFS questionnaire does, resulting in some differences.

Other differences occur because of the self-enumerated nature of the Census forms and the inevitable differences in interpretation among respondents. As a result, the LFS and Census definitions differ slightly for those employed, unemployed, and not in the labour force.

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# National Aboriginal and Torres Strait Islander Social Survey (NATSISS)

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#### NATIONAL ABORIGINAL AND TORRES STRAIT ISLANDER SOCIAL SURVEY

The 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) (cat. no. 4714.0) was a survey of approximately 13,300 Indigenous persons, of which 7,300 were aged 15 years and over. Although the underlying concepts were the same as in the LFS, the questions and definitions relating to the labour force differed slightly from those used in the LFS.

#### **Population differences**

The NATSISS estimates were benchmarked to the low series Indigenous population projections for those aged 15 years and over living in **private dwellings** in each state and territory, at 31 December 2008. Consequently, the NATSISS benchmarks are lower than the benchmarks used for LFS annual estimates, which include people living in other types of dwellings, such as hotels and boarding houses.

#### **Questionnaire differences**

In addition to the differing population bases, labour force estimates from NATSISS are likely to be different to the LFS due to the use of a shorter questionnaire module in the NATSISS. This questionnaire module has been found to categorise 1% of unemployed persons (as defined by the LFS) as not in the labour force. Also, there are some situations where people would be classified as either unemployed or not in the labour force in the LFS, but where the reduced questionnaire module is used, are classified as employed (about 0.1% of employed).

The NATSISS also differs from current LFS practices by specifically asking about participation in CDEP. All respondents were asked whether they were CDEP participants, regardless of whether they reported having a job in the reference week or not. Therefore, while some respondents in the NATSISS did not consider CDEP participation to be a job, they were classified as employed due to their participation in CDEP.

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# National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

Contents >> Other Sources of Information >> National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

#### NATIONAL ABORIGINAL AND TORRES STRAIT ISLANDER HEALTH SURVEY

The 2004-05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)

(cat. no. 4715.0) labour force results were based on a total of 6,325 Aboriginal and Torres Strait Islanders aged 15 years and over from across Australia. These people were interviewed between August 2004 and July 2005.

#### **Population differences**

The 2004-05 NATSIHS was benchmarked to the estimated Indigenous resident population living in **private dwellings** in each state and territory at 31 December 2004. This low series population projection was based on results from the 2001 Census of Population and Housing. The 2004-05 NATSIHS sample covered usual residents of private dwellings only. Residents of dwellings such as hotels, motels, hostels and hospitals, and visitors to private dwellings, were not included in the survey.

#### **Questionnaire differences**

The 2004-05 NATSIHS used a shorter questionnaire module to determine labour force status. Like the NATSISS, all respondents were asked whether they were CDEP participants, regardless of whether they reported having a job in the reference week or not. Therefore, while some respondents in the NATSIHS did not consider CDEP participation to be a job, they were classified as employed due to their participation in CDEP.

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#### **Future Data Collections**

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#### **FUTURE DATA COLLECTIONS**

In addition to the continued publication of annual estimates from the LFS, data on the labour force characteristics of Indigenous people will be next available from the 2011 Census of Population and Housing.

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## **Explanatory Notes**

## **Explanatory Notes**

#### **EXPLANATORY NOTES**

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Labour Force Survey Methodology and Concepts Labour Force Survey Methodology Benchmarks LFS Sample Labour Force Concepts Employment
Unemployment
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#### LABOUR FORCE SURVEY METHODOLOGY AND CONCEPTS

1 The Australian Bureau of Statistics (ABS) has been conducting the Labour Force Survey (LFS) since 1960. Originally, the survey was conducted quarterly, before becoming monthly in February 1978. The LFS provides information on the labour market activity of the usually resident civilian population of Australia aged 15 years and over. This section provides information about the LFS methodology, concepts and definitions.

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#### LABOUR FORCE SURVEY METHODOLOGY

- **2** The LFS is conducted by the ABS to provide monthly labour force statistics. The information is obtained from the occupants of selected dwellings by specially trained interviewers. The information obtained relates to the week before the interview (i.e. the reference week).
- **3** Households selected for the LFS are interviewed each month for eight months, with one eighth of the sample being replaced each month. The first interview is conducted face-to-face. Subsequent interviews are conducted by telephone (if acceptable to the respondent). A responsible adult in each selected household is asked to provide information about the labour force status of the usual residents and visitors covered by the survey. A usual resident is one who regards that dwelling as their own or main home, and who usually lives there. Persons who are away from their usual residence for six weeks or less are enumerated at their usual residence wherever possible (by obtaining information from other usual residents present at the time of the survey).
- 4 The scope of the LFS includes all persons aged 15 years and over except members of the permanent defence forces, certain diplomatic personnel of overseas governments customarily excluded from census and estimated population counts, overseas residents in Australia, and members of non-Australian defence forces (and their dependants) stationed in Australia. In common with other ABS household surveys, Jervis Bay Territory is excluded from the scope of the survey.

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#### **Benchmarks**

**5** LFS estimates are calculated in such a way as to add up to independent estimates of the civilian population aged 15 years and over (population benchmarks). Indigenous estimates in this publication were compiled using benchmarks from the low series population projections in **Experimental Estimates and Projections**, **Aboriginal and Torres Strait Islander Australians**, **1991 to 2021** (cat. no. 3238.0). These projections are not predictions or forecasts, but are projections of the 2006 Census data reflecting the growth in population which would occur if certain assumptions about future levels of fertility, mortality, migration and unexplained growth were to prevail over the projection period.

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**6** In 2009 the LFS was based on a multistage area sample of private dwellings (around 29,000 houses, flats, etc.) and a list sample of non-private dwellings (hotels, motels, etc.), and covers approximately 0.33% of the civilian population of Australia aged 15 years and over.

**7** The survey sample is designed so that, within each state or territory, each dwelling has the same probability of selection in the sample. The sampling fractions for each state and territory differ, in order to enable reliable estimates of the main labour force characteristics for each state and territory. For more information on the sample design, refer to **Information Paper: Labour Force Survey Sample Design** (cat. no. 6269.0), released on 1 October 2009.

**8** The LFS sample is not spread evenly across Australia or across a state or territory. The sample is clustered for the practical reason of reducing the costs associated with sample maintenance and of interviewer travel between selected dwellings. The more highly clustered the sample (that is the larger the number of selected units in a small area), the cheaper it is to enumerate, but also the less reliable are estimates derived from the sample (since the sample is confined to a small area and may be less representative). The issue of clustering particularly affects the estimates for remote areas where clustering is higher than in other areas.

**9** In the LFS, coverage rules are applied which aim to ensure that each person is associated with only one dwelling, and hence has only one chance of selection. The coverage rules are necessarily a balance between theoretical and operational considerations. Nevertheless, the chance of a person being enumerated at two separate dwellings in the survey is considered to be negligible.

**10** As one of a range of ABS savings initiatives for the 2008-09 financial year, there was a 24% reduction in the LFS sample size for the period July 2008 to August 2009, relative to the June 2008 sample size. The sample reduction was reinstated from September 2009 to December 2009, with December 2009 estimates being the first produced under the fully reinstated sample. Further information about the sample cut and reinstatement can be found in **Information Paper: Labour Force Survey Sample Design** (cat. no. 6269.0)

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#### LABOUR FORCE CONCEPTS

**11** The labour force framework classifies the in-scope population according to their labour force status (that is employed, unemployed, or not in the labour force). The employed and unemployed categories together make up the labour force, which gives a measure of the number of persons contributing to, or willing to contribute to, the supply of labour at the time of the survey.

**12** Labour force definitions used by the ABS align closely with international standards and guidelines as specified by the International Labour Organisation (ILO). The definitions used by the ABS are outlined below. More detailed information may be obtained from **Labour Statistics: Concepts, Sources and Methods** (cat. no. 6102.0.55.001), which is available from the ABS web site <www.abs.gov.au>.

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#### **Employment**

**13** Employed persons are those aged 15 years or over who, during the survey reference week, worked for one hour or more for pay, profit or payment in kind in a job or business, or

on a farm; or worked for one hour or more without pay in a family business or on a farm; or who had a job but were not at work for a number of specified reasons; or were employers or self-employed persons who had a job, business or farm, but were not at work.

- **14** The definition of employment specifically refers to work for at least one hour. This definition is used to ensure that any work which contributes to the national accounting measures of national production is included in the measure of employed.
- **15** Persons are classified as employed based on the actual activities of each person, and this categorisation does not depend on their participation in labour market programs. Persons who participate in labour market programs are counted as employed, unemployed or not in the labour force according to how they respond to questions in the labour force survey about their actual activity in the week before the interview. Two important labour market programs are the 'work for the dole' scheme and the Community Development Employment Projects (CDEP) scheme.
- 16 Under the 'work for the dole' scheme, some persons receiving income support are required to work on not-for-profit community-based projects for a number of hours per week, which, at the relevant award rate of pay, equates to the income support entitlement. The participants receive their unemployment benefit payments directly from the administering government agency and not from the organisations undertaking the community projects, and therefore the organisations do not have an employer/employee relationship with the scheme participants. Accordingly, persons participating in 'work for the dole' schemes are not regarded as being in paid employment but are considered to be undertaking unpaid work. Depending on other activity they undertake in the survey reference period, they may be classed as unemployed or not in the labour force.
- 17 The CDEP scheme provides employment for Indigenous people living in remote, rural and urban areas. In a community with a CDEP scheme, the participants are paid a wage by the CDEP organisation to undertake work or training. While the types of activities undertaken might not differ greatly from those undertaken by 'work for the dole' participants, there is an employer/employee relationship between the participants and the CDEP organisation. CDEP participants are therefore treated as employed in the LFS. It is currently not possible to separately identify CDEP participants in the LFS.
- 18 From July 2009, the CDEP scheme was discontinued in urban and rural areas. CDEP continues to operate in remote communities and participants employed by CDEP organisations prior to July 2009 will continue to receive wages in an employer/employee relationship until CDEP is phased out in July 2011. Participants who joined after July 2009 receive unemployment benefits instead of CDEP wages, and are considered by the ABS to be undertaking unpaid work in a similar manner to those in the 'work for the dole' scheme.

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#### Unemployment

- 19 Unemployed persons are defined as all persons aged 15 years and over who were not employed during the reference week, and either had actively looked for full-time or part-time work at any time in the four weeks up to the end of the reference week and were available for work in the reference week, or were waiting to start a new job within four weeks from the end of the reference week and could have started in the reference week if the job had been available then.
- **20** 'Actively looking for work' encompasses a range of formal and informal job search activities and includes: writing, telephoning or applying in person to an employer for work; answering an advertisement for a job; checking workplace notice boards or the touch

screens at Centrelink offices; being registered as a job seeker with Centrelink; being registered with a Job Network agency or any other employment agency; advertising or tendering for work; and contacting friends or relatives. People actively looking for self-employment jobs (such as looking for a business or to purchase a lease) are also treated as looking for work.

**21** People who only looked in newspapers or read job advertisements are seen as passively, rather than actively, looking for work and so are not considered unemployed. The ABS view is that 'only looked in newspapers' does not meet the active search criterion, nor does simply looking at job advertisements on the Internet. It is impossible to obtain work by looking at a job advertisement without some additional, active, job search step (for example, contacting the employer).

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#### Not in the labour force

**22** Persons not in the labour force comprise those in the population who satisfy neither the employment nor unemployment criteria. They include persons who don't want to work for a variety of reasons, such as homemakers and retirees from the labour force, and those who cannot work as a result of a disability. It also includes people who are in hospital, prison, or other institutions.

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#### **DATA QUALITY**

- **23** Care has been taken to ensure that the estimates in this publication are as accurate as possible. There remain, however, other factors which may have affected the reliability of results, and for which no specific adjustments can be made. The following factors should be considered when interpreting these estimates:
  - Information recorded in this survey is essentially 'as reported' by respondents, and hence may differ from that which might be obtained from other sources or by using other collection methodologies. Responses may be affected by imperfect recall or individual interpretation of survey questions.
  - The labour force characteristics of Indigenous people vary according to remoteness. Differences when comparing estimates between states and territories are therefore likely to be influenced by the distribution of Indigenous people by remoteness within the respective states and territories.
  - Some states and territories have relatively small Indigenous populations, therefore the estimates are likely to be based on a very small sample which in turn may affect the data quality.
  - The labour force characteristics of Indigenous people living in discrete Indigenous communities can be influenced by whether the community is participating in CDEP. Because of the small number of Indigenous communities selected in the LFS, there is the potential for wide statistical fluctuations in estimates of labour force characteristics of remote Indigenous communities over time if the sample moves from communities participating in CDEP to those which do not (or vice versa). Furthermore, communities that were selected during 2009 may have reported different labour force characteristics before and after the reforms to CDEP in July 2009.

## **Glossary**

#### **GLOSSARY**

#### IN THIS SECTION

Actively looking for work Civilian population aged 15 years and over Community Development Employment Projects (CDEP) scheme Contributing family worker **Employed** Employment to population ratio Indigenous Labour force Labour force status Major cities Not in labour force Participation rate Population benchmark Population value Relative Standard Error (RSE) Regional areas Remote areas Standard Error (SE) Unemployed Unemployment rate

#### **Actively looking for work**

Includes writing, telephoning or applying in person to an employer for work; answering an advertisement for a job; checking factory notice boards or the touch screens at Centrelink offices; being registered with Centrelink as a jobseeker; checking or registering with any other employment agency; advertising or tendering for work; and contacting friends or relatives.

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#### Civilian population aged 15 years and over

All usual residents of Australia aged 15 years and over except members of the permanent defence forces, certain diplomatic personnel of overseas governments customarily excluded from the census and estimated population counts, overseas residents in Australia, and members of non-Australian defence forces (and their dependants) stationed in Australia.

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#### **Community Development Employment Projects (CDEP) scheme**

The CDEP scheme enables participants (usually members of Aboriginal or Torres Strait Islander communities) to exchange unemployment benefits for opportunities to undertake work and training in activities which are managed by a local Aboriginal or Torres Strait Islander community organisation. Participants in the program are therefore classified as employed.

In July 2009, the CDEP scheme was discontinued in non-remote communities where the

economy is well-established. In remote communities, CDEP will continue to operate but new participants are no longer classified as employed, and the program will be phased out in July 2011.

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#### **Contributing family worker**

A person who works without pay, in an economic enterprise operated by a relative.

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#### **Employed**

Persons aged 15 years and over who, during the reference week:

- worked for one hour or more for pay, profit, commission or payment in kind in a job or business, or on a farm (comprising employees, employers and own account workers); or
- worked for one hour or more without pay in a family business or on a farm (i.e. contributing family workers); or
- were employees who had a job but were not at work and were:
  - away from work for less than four weeks up to the end of the reference week; or
  - away from work for more than four weeks up to the end of the reference week and received pay for some or all of the four week period to the end of the reference week; or
  - away from work as a standard work or shift arrangement; or
  - on strike or locked out; or
  - on workers' compensation and expected to return to their job; or
- were employers or own account workers, who had a job, business or farm, but were not at work.

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#### **Employment to population ratio**

For any group, the number of employed persons expressed as a percentage of the civilian population aged 15 years and over in the same group.

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#### **Indigenous**

Refers to people who identified themselves, or were identified by another household member, as being of Aboriginal and/or Torres Strait Islander origin.

#### Labour force

For any group, persons who were employed or unemployed, as defined.

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#### Labour force status

A classification of the civilian population aged 15 years and over into employed, unemployed or not in the labour force, as defined. The definitions conform closely to the international standard definitions adopted by the International Conferences of Labour Statisticians.

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#### **Major cities**

Major cities is a geographical category in the Australian Standard Geographical Classification (ASGC) Remoteness Structure. These categories are based on the Accessibility/Remoteness Index of Australia (ARIA) which measures the remoteness of a point based on the physical road distance to the nearest Urban Centre. For more information on the ASGC, see **Australian Standard Geographical Classification (ASGC)**, **July 2009** (cat. no. 1216.0). See also Regional and Remote areas.

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#### Not in labour force

Persons who were not in the categories employed or unemployed, as defined.

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#### **Participation rate**

For any group, the labour force expressed as a percentage of the civilian population in the same group.

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#### **Population benchmark**

Labour Force Survey estimates of persons employed, unemployed and not in the labour force are calculated in such a way as to add up to an independently estimated distribution of the usually resident civilian population aged 15 years and over. The independent population estimates (benchmarks) for the Indigenous population are based on the low series population projections found in Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021 (cat. no. 3238.0).

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#### Population value

The value that would be obtained if the whole population were enumerated under the same procedures as used in the sample survey.

#### **Relative Standard Error (RSE)**

The relative standard error is the standard error expressed as a percentage of the estimate to which it refers, and is useful when comparing the variability of estimates of different sizes.

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#### Regional areas

Comprises the 'Inner Regional' and 'Outer Regional' categories of the Australian Standard Geographical Classification (ASGC) Remoteness Structure. These categories are based on the Accessibility/Remoteness Index of Australia (ARIA) which measures the remoteness of a point based on the physical road distance to the nearest Urban Centre. For more information on the ASGC, see **Australian Standard Geographical Classification (ASGC)**, **July 2009** (cat. no. 1216.0). See also Major cities and Remote areas.

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#### Remote areas

Comprises the 'Remote' and 'Very Remote' categories of the Australian Standard Geographical Classification (ASGC) Remoteness Structure. These categories are based on the Accessibility/Remoteness Index of Australia (ARIA) which measures the remoteness of a point based on the physical road distance to the nearest Urban Centre. For more information on the ASGC, see **Australian Standard Geographical Classification (ASGC)**, **July 2009** (cat. no. 1216.0). See also Major cities and Regional areas.

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#### **Standard Error (SE)**

A measure of the variation among the estimates from all possible samples, and thus a measure of the precision with which an estimate from a particular sample approximates the average result of all possible samples. The units of the standard error are the same as the variable of interest.

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#### Unemployed

Persons aged 15 years and over who were not employed during the reference week, and:

- had actively looked for full-time or part-time work at any time in the four weeks up to the end of the reference week and were available for work in the reference week; or
- were waiting to start a new job within four weeks from the end of the reference week and could have started in the reference week if the job had been available then.

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#### **Unemployment rate**

For any group, the number of unemployed persons expressed as a percentage of the labour force in the same group.

#### **Abbreviations**

#### **ABBREVIATIONS**

ABS Australian Bureau of Statistics

CDEP Community Development Employment Projects

ERP estimated resident population

LFS Labour Force Survey

NATSIHS National Aboriginal and Torres Strait Islander Health Survey NATSISS National Aboriginal and Torres Strait Islander Social Survey

pts percentage points
RSE relative standard error

SE standard error

## **Quality Declaration - Summary**

#### **QUALITY DECLARATION - SUMMARY**

#### IN THIS SECTION

Institutional Environment Relevance Timeliness Accuracy Coherence Interpretability Accessibility

#### **INSTITUTIONAL ENVIRONMENT**

For information on the institutional environment of the Australian Bureau of Statistics (ABS), including the legislative obligations of the ABS, financing and governance arrangements, and mechanisms for scrutiny of ABS operations, please see <u>ABS Institutional Environment</u>.

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#### **RELEVANCE**

This collection presents information about the labour force characteristics of Aboriginal and Torres Strait Islander Australians aged 15 years and over. The information is based on data collected in the national monthly Labour Force Survey (LFS). Revised data from previous years has also been included with this publication for comparison purposes.

#### **TIMELINESS**

The Labour Force Characteristics of Aboriginal and Torres Strait Islander Australians combines data collected from each monthly Labour Force Survey conducted through out the calendar year. The results obtained from combining this data is released approximately 5 months after the end of the calendar year (ie during May).

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#### **ACCURACY**

A number of statistical issues need to be considered when using LFS estimates to describe Indigenous labour force characteristics. Some of these statistical issues arise because the LFS is designed primarily to provide reliable estimates for the whole of Australia and for each state and territory, rather than estimates for small populations. The small size of the Indigenous population, its wide dispersion, and the relatively high proportion who live in remote areas present particular difficulties. To help in the interpretation of the estimates the publication discusses these statistical issues in Concepts, Sources and Methods.

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#### **COHERENCE**

Apart from the information presented in this publication, information on the labour force characteristics of the Indigenous population is also available from:

- Census of Population and Housing, 2006
- National Aboriginal and Torres Strait Islander Social Survey (NATSISS), 2008 (cat. no. 4714.0)
- National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), 2004-05 (cat. no. 4715.0)

Although the estimates available from the non-LFS sources are based on the same underlying concepts as the LFS, there are differences which affect the comparability of data. The publication details the differences between the various sources in Other Sources of Information.

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#### **INTERPRETABILITY**

The Labour Force Characteristics of Aboriginal and Torres Strait Islander Australians publication contains tables with footnoted data (available in Downloads) and a summary of findings (Participation, Employment and Unemployment) to aid interpretation of the results of the survey. Detailed explanatory notes, a technical note, a glossary and details of the methodology and concepts used (in Concepts, Sources and Methods) are also included to further aid in the interpretation of the results.

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The main product from this collection is a PDF publication, **Labour Force Characteristics of Aboriginal and Torres Strait Islander Australians** (cat. no. 6287.0), released electronically via the ABS website. Additional data may be available on request. However, the sample size of the collection, and the resulting standard errors, limits the ability for estimates to be broken down much further than available in the publication.

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For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070, email client.services@abs.gov.au or Scott Marley on Canberra (02) 6252 6525, email labourforce@abs.gov.au

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#### **Technical Note**

#### **TECHNICAL NOTE**

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Reliability of Estimates
Non-Sampling Error
Sampling Error
Standard Error
Relative Standard Error
Examples of Calculations
Level Standard Errors
Movement Standard Errors
Differences between Estimates

#### **RELIABILITY OF ESTIMATES**

**1** Estimates from the LFS, as with data from all surveys, are subject to error. The data presented in this publication are subject to two sources of error:

- non-sampling error, which arises from imperfections in reporting, recording or processing of data that can occur in any survey or census.
- sampling error, which occurs because data were obtained from a sample rather than the entire population.

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#### **NON-SAMPLING ERROR**

**2** The main sources of non-sampling error are response errors and non-response bias. These may occur in any enumeration whether it is a full count or a sample.

- **3** Response errors include errors on the part of both respondents and interviewers. These reporting errors may arise through inappropriate wording of questions, misunderstanding of what data are required, inability or unwillingness to provide accurate information, and mistakes in answers to questions.
- **4** Non-response bias arises because the persons for whom no response is available may have different characteristics in relation to labour market behaviour than persons who responded in the survey.
- **5** Non-sampling errors are difficult to quantify in any collection. However, every effort is made to minimise these errors in the LFS by careful design of questionnaires, intensive training and supervision of interviewers and efficient operating procedures. Non-response bias is minimised by call-backs to those households which do not respond, and is compensated for in the estimation process.
- **6** There are a number of other issues associated with collecting information from Indigenous persons in communities in remote areas. Although special procedures are used in some Indigenous communities, there may still be some cultural and practical difficulties in applying standard labour force concepts in these communities. Operational issues include the high turnover of trained interviewers in remote areas, the seasonal fluctuations in population numbers as well as in employment opportunities, and high population mobility.
- **7** Responses in the LFS may be given by any responsible adult in each selected household. Reporting errors may arise when the respondent provides information for another member of the household without being fully aware of their labour force details. Although this is a minor issue for the survey in general, the higher mobility of Indigenous household members may affect the accurate reporting of details such as active job search or availability for work.

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#### **SAMPLING ERROR**

**8** The LFS estimates are based on information obtained from a sample of the population, and are subject to sampling error. Sampling error is the difference between the estimate obtained from a particular sample and the value that would have been obtained if the whole population were enumerated under the same procedures (referred to as the 'population value').

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#### Standard error

- **9** The most commonly used measure of sampling error is the standard error (SE). This measure indicates the extent to which a survey estimate is likely to deviate from the true population value by chance. There are about two chances in three (67%) that the sample estimate will differ by less than one standard error from the estimates that would have been obtained if all dwellings had been included in the survey, and about nineteen chances in twenty (95%) that the difference will be less than two standard errors.
- **10** The magnitude of the sampling error depends on the sample design, the sample size and the population variability. The larger the sample on which the estimates are based, the smaller the sampling error. The main contribution to sampling error for the Indigenous labour force estimates is the sample size.
- **11** Movements in the level of an estimate are also subject to sampling variability. The standard error of the movement depends on the levels of the estimates from which the

movement is obtained rather than the size of the movement. The standard errors for both level estimates and movements between annual estimates are provided in Tables 1 to 5 (available in Downloads). The standard errors have been derived using the group jack-knife method.

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#### Relative standard error

- 12 Another measure of sampling error is the relative standard error, which is obtained by expressing the standard error as a percentage of the estimate to which it refers. The smaller the sample estimate, the higher the relative standard error. The small sample size of Indigenous persons results in estimates of labour force characteristics which are considerably less precise and less stable than comparable aggregate estimates for non-Indigenous persons. This is reflected in the relatively high standard errors for the survey estimates derived for Indigenous persons.
- 13 Very small estimates are subject to such high standard errors, relative to the size of the estimate, as to detract seriously from their value for most reasonable uses. In Tables 1 to 5 (available in Downloads), only estimates with relative standard errors of less than 25%, are considered sufficiently reliable for most purposes. Accordingly, while included in the tables, estimates with relative standard errors of 25% or more are preceded by an asterisk (e.g. \*3.4), to indicate they are subject to high standard errors and should be used with caution.
- **14** Proportions and percentages (for example, unemployment rates) formed from the ratio of two estimates are also subject to sampling error. The size of the error depends on the accuracy of both the numerator and the denominator. A formula to approximate the RSE of a proportion or percentage is:

$$\mathsf{RSE}(\mathbf{x}/\mathbf{y}) = \sqrt{\left[\mathsf{RSE}(\mathbf{x})\right]^2 - \left[\mathsf{RSE}(\mathbf{y})\right]^2}$$

**15** This formula is only valid when x is a subset of y.

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#### **EXAMPLES OF CALCULATIONS**

#### Level standard errors

**16** As an example of the calculation and use of standard errors, consider the estimate of 161,200 Indigenous persons employed in 2009. The standard error for this estimate is 8,800 (see L1 of Table 1, available in Downloads). This indicates that there is a 67% chance that the true value (the number that would have been obtained if the whole population had been included in the survey) is within the range 152,400 to 170,000 (that is, 161,200 + or - 8,800). There is a 95% chance that the true value is in the range 143,600 to 178,800 (that is, 158,000 + or - 17,600).

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#### **Movement standard errors**

17 Standard errors can also be used to interpret the reliability of annual movement estimates. For example, in 2008 there were an estimated 91,200 Indigenous males in employment, decreasing to 89,100 in 2009 (a movement of -2,100). The associated standard error for the movement estimate is 4,900 (see M1 of Table 1, available in Downloads) . This indicates that there is a 67% chance that the true value of the movement is within the range -7,000 to 2,800 (that is, -2,100 + or - 4,900) and there is a 95% chance

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#### Differences between estimates

**18** Published estimates may also be used to calculate the difference between two survey estimates (numbers or percentages). Such an estimate is subject to sampling error. The sampling error of the difference between two estimates depends on their SEs and the relationship (correlation) between them. An approximate SE of the difference between two estimates (x-y) may be calculated by the following formula:

$$\mathbb{SE}(\mathbf{x} \!\!-\!\! \mathbf{y}) = \sqrt{\left[\mathbb{SE}(\mathbf{x})\right]^2 + \left[\mathbb{SE}(\mathbf{y})\right]^2}$$

- **19** While this formula will only be exact for differences between separate and uncorrelated characteristics or subpopulations, it is expected to provide a good approximation for all differences likely to be of interest in this publication.
- **20** For example, in 2009, the participation rate of Indigenous males was 62.8%, 14.3 percentage points higher than the rate of 48.5% for Indigenous females. The approximate standard error of the difference between these two estimates can be calculated as follows:

$$SE(x-y) = \sqrt{[SE(x)]^2 + [SE(y)]^2}$$
$$= \sqrt{[2.5]^2 + [2.7]^2}$$
$$= 3.7$$

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